Amendments in the claims:

1. (currently amended) A method ~~for illuminating a target~~ for optical lithography, the method comprising:

a) providing a photomask including:

i) a transparent substrate having first and second surfaces on opposite sides of said substrate, said second surface facing said target;

ii) a first mask pattern on said first surface; and

iii) a second mask pattern on said second surface;

b) transmitting an incident light through said first mask pattern to form a propagation pattern at said second surface, wherein said propagation pattern differs from said first mask pattern as a result of a wave propagation effect; ~~and~~

c) transmitting light from said propagation pattern through said second mask pattern to form a predetermined target pattern on said target, wherein said predetermined target pattern is a combination of said second mask pattern and said propagation pattern; and~~.~~

d) transferring said predetermined target pattern to said target.

2. (original) The method of claim 1, wherein a critical dimension in said target pattern is less than about 0.5 microns.

3. (original) The method of claim 1, wherein said first mask pattern comprises an opaque material.

4. (original) The method of claim 3, wherein said opaque material comprises amorphous silicon, chromium or iron oxide.

5. (original) The method of claim 1, wherein said first mask pattern comprises a transparent material.

6. (original) The method of claim 6, wherein said transparent material comprises MgF_2, CaF_2, lithium niobate, silicon nitride, quartz or glass.

7. (original) The method of claim 1, wherein said second mask pattern comprises an opaque material.

8. (original) The method of claim 7, wherein said opaque material comprises amorphous silicon, chromium or iron oxide.

9. (original) The method of claim 1, wherein said second mask pattern comprises a transparent material.

10. (original) The method of claim 9, wherein said transparent material comprises MgF_2, CaF_2, lithium niobate, silicon nitride, quartz or glass.

11. (original) The method of claim 1, wherein said substrate comprises glass.

12. (original) The method of claim 1, wherein said substrate has a thickness separating said first and second surfaces in a range from about 0.3 mm to about 5 mm.

13. (original) The method of claim 1, wherein said propagation pattern comprises a double slit optical diffraction pattern.

14. (original) The method of claim 1, wherein said propagation pattern comprises an Airy disk optical diffraction pattern.

15. (original) The method of claim 1, wherein said propagation pattern comprises a single edge optical diffraction pattern.

16. (original) The method of claim 1, wherein said propagation pattern comprises a monotonic optical intensity distribution.

17. (original) The method of claim 1, wherein said incident light is substantially at a single wavelength.

18. (original) The method of claim 1, wherein said incident light is substantially at a plurality of wavelengths.

19. (original) The method of claim 1, wherein said incident light comprises light at substantially a continuous range of wavelengths.

20. (original) The method of claim 1, wherein said second mask pattern is in proximity to said target.

Detailed action: comments on amendments to the claims

Claim 1 is currently amended to more clearly define the present invention.

The target pattern provided to the target is now required to be a "predetermined target pattern". Support for this amendment is present in the application as filed. For example, in the embodiment of **Figs. 2a-b**, target pattern 210 is predetermined by first mask pattern 204, second mask pattern 208, and the wavelength of light 202 (page 10, lines 1-16). Similarly, in the embodiment of **Figs. 1a-b**, target pattern 110 is predetermined by first mask pattern 104, second mask pattern 108, and the spectral composition of light 102 (page 7, line 6 to page 8, line 2).

The propagation pattern at the second surface is now required to "differ from the first mask pattern as a result of a wave propagation effect". Support for this amendment is present in the application as filed. For example, in the embodiment of **Figs. 2a-b**, the propagation pattern 218 is a double slit fringe pattern which differs from first mask pattern 204 as a result of a wave propagation effect (diffraction), as described on page 10, lines 1-16. In the embodiment of **Figs. 1a-b**, propagation pattern 118 has a smooth intensity distribution, which differs from the discontinuity in first mask pattern 104 due to a wave propagation effect (diffraction at multiple wavelengths, tending to wash out fringes and provide a smooth intensity distribution), as described from page 7, line 6 to page 8, line 2.

The predetermined target pattern is now required to be a "combination of the second mask pattern and the propagation

pattern". Support for this amendment is present in the application as filed, e.g., on page 10 lines 1-16 and from page 7, line 6 to page 8, line 2.

Claim 1 is now directed specifically to a method for optical lithography, and now includes the step of "transferring the predetermined target pattern to the target". Support for this amendment is present in the application as filed, e.g., on lines 19-21 of page 6.

Detailed action: claim rejections under 35 USC 102

Claims 1, 3-4, 7-8, and 20 stand rejected under 35 USC 102(b) as anticipated by the article by Nakao et al., entitled "Focus Monitoring Utilizing an Aperture in Cr Film on Backside of Photo Mask", hereinafter Nakao.

Claim 1 is currently amended to more clearly define the present invention. In particular, claim 1 is specifically directed to an optical lithography method for providing a predetermined target pattern to a target and transferring that target pattern to the target. In sharp contrast, the method of Nakao is a method of focus monitoring that does not entail transferring a predetermined target pattern to a target. More specifically, the pattern formed by the apparatus of Nakao can be monitored as a measure of focus accuracy, since a lateral shift of the pattern of Nakao varies as the focus is changed. There is no teaching or suggestion in Nakao that it would be useful or desirable to transfer the focus test pattern to the target being illuminated. Furthermore, the test pattern of Nakao is not predetermined, since the basic point of Nakao's method is to monitor changes in the focus test pattern in order

to monitor for unintended deviations from a correct focusing condition.

For these reasons, Applicant believes claim 1 as amended is not anticipated by Nakao. Since claims 3-4, 7-8, and 20 depend from claim 1, these amendments and arguments relating to claim 1 are also responsive to this rejection of claims 3-4, 7-8 and 20.

Detailed action: claim rejections under 35 USC 102

Claims 1, 3-4, 7-8, and 20 stand rejected under 35 USC 102(e) as anticipated by the US 2004/0146139, hereinafter Morales.

Claim 1 is currently amended to more clearly define the present invention. In particular, the propagation pattern at the second surface is required to differ from the first mask pattern as a result of a wave propagation effect, and the target pattern is required to be a combination of the propagation pattern and the second mask pattern. In sharp contrast, Morales relates to X-ray lithography (instead of optical lithography), where wave propagation effects are negligible for realistic mask dimensions. More specifically, X-rays will experience essentially straight-line propagation from the first mask pattern to the second mask pattern. As a result, the X-ray pattern in Morales at the second mask surface is the same as the first mask pattern. For example, paragraph 78 of Morales describes the combination of the first and second mask patterns in terms of an added thickness of attenuating material through which the X-rays pass. In other words, the target pattern provided by the method of Morales is a combination of the first mask pattern and the second mask pattern. Figs 5, 12, and 17 of

Morales are also consistent with this description. There is no teaching or suggestion of the importance or relevance of wave propagation effects in Morales, which is to be expected since such effects in propagation from one mask surface to another mask surface are negligible for X-rays.

Since the method of Morales does not teach or suggest a propagation pattern at the second mask surface differing from the first mask pattern as a result of a wave propagation effect, Applicant holds that claim 1 as amended is not anticipated by Morales. Since claims 3-4, 7-8, and 20 depend from claim 1, these amendments and arguments relating to claim 1 are also responsive to this rejection of claims 3-4, 7-8 and 20.

Detailed action: claim rejections under 35 USC 103

Claims 2, 5-6, and 9-19 stand rejected under 35 USC 103(a) over Nakao or Morales in view of US 6,664,011, hereinafter Lin.

The above arguments and amendments with respect to claim 1 are also responsive to this rejection of claims 2, 5-6, and 9-19, since these claims depend from claim 1.

With respect to claims 13-16, it appears from the office action that the further limitations of these claims are not found in Lin. Instead, Examiner holds that these patterns are "known in the art".

Although Applicant readily concedes that these patterns are known in the art, that fact in isolation does not suffice to make out a prima facie case of obviousness relating to claims 13-16. In particular, the references of record do not teach or suggest using a propagation pattern having any of the features